

REMARKS

In the Action, claims 1-4 are rejected. In response, claim 1 is amended and claims 2 and 3 are cancelled. This leaves claims 1 and 4 pending in this application, with claim 1 being the sole independent claim.

Claim 1 is amended to include the subject matter of original claims 2 and 3 and to recite the average acylation rate of 55 to 90% as disclosed on page 6, line 11, of the specification. Accordingly, these amendments do not raise new issues after the final rejection, and should be entered and considered on their merits, despite being submitted after final rejection.

In view of these amendments and the following comments, reconsideration and allowance are requested.

The Rejections

The claims are rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,720,374 to Sashida et al. Sashida et al. is cited for disclosing a biodegradable composition comprising a polyester, a polyglycerol acetic ester and a glycerol acetic fatty acid ester.

Sashida et al. does not disclose an aliphatic polyester resin composition comprising a lactic acid polyester and a plasticizer of Formula 1 having an acylation rate of 55 to 90% and having the R¹, R², R³ groups selected from an acyl group having 2 to 18 carbon atoms or a hydrogen atom and the R¹, R², R³ groups containing at least one acyl group having 8 to 18 carbon atoms where the composition has high solvent resistance to a paraffin solvent system as in claim 1. Accordingly, claim 1 is not anticipated by Sashida et al. The composition of the present

invention has a high solvent resistance to a paraffin solvent so that the polyester does not elute easily into the paraffin solvent. The composition of Sashida et al. comprising a polyester resin, a polyglycerol acetic ester and a glycerol acetic fatty acid ester does not exhibit the solvent resistance as in the present invention.

As noted in the Action, Sashida et al. does not disclose or suggest the average acylation rate. Applicants respectfully submit that the Action has not established that the claimed acylation rate is inherent in the composition of Sashida et al. The glycerol fatty acid ester disclosed in Sashida et al. and the Examples and methods of preparing the glycerol acetic fatty acid ester requires that at least one of the R groups of the Formula disclosed in Sashida et al. is an acetyl group or a hydrogen atom. In particular, the acylation rate of Samples 3-12 of Sashida et al. demonstrate to one skilled in the art that the compounds envisioned by Sashida et al. do not have an acylation rate of 55 to 90% as in the claimed invention. In particular, Samples 3-7 are a polyglycerol acetic acid ester which are not the glycerol acetic fatty acid ester of the present invention.

Samples 8-12 of Sashida et al. include a mixture of a polyglycerol acetic acid ester and glycerol acetic fatty acid esters. As noted in the Action, Sashida et al. does not suggest the acylation rate. However, the esterification rate of Sample 11 and Sample 12 can be calculated by the hydroxyl value. The hydroxyl value of the diglycerol acetic ester under the tradename RIKEMAL PL-012 is 99.2% of Sample 11, and the diglycerol acetic ester of Sample 12 sold under the tradename POEM G-038 has a hydroxyl value of 98%.

As disclosed in column 4, lines 18-28 of Sashida et al., the acetyl group of the glycerol fatty acetic ester is 2 mols or less on average with respect to 1 mol of glycerol. The acyl group

having 8 to 22 carbon atoms having an acyl group of 8 to 18 carbon atoms is 1 mol or more on average with respect to 1 mol of glycerol. As noted in the Action, Sashida et al. discloses that the hydroxyl group value for the compound is preferably 20 or less. The hydroxyl group value of glyceroldiacetomonolaurate is calculated where the hydroxyl group value is equal to 20. The glyceroldiacetomonolaurate having a hydroxyl group value of 20 has two main components, namely, the glyceroldiacetomonolaurate having a hydroxyl group value of 0, and the glycerolmonoacetomonolaurate having a hydroxyl group value of 177.5. The hydroxyl group value of 20 is calculated according to the proportion of the glyceroldiacetomonolaurate of 88.7% and the glycerolmonoacetomonolaurate of 11.3%. The numerical value of the hydroxyl group value is according to the Standard of AOCS, Cd 13-60 (Published by American Oil Chemical Society).

The acylation rate of Sashida et al. of the triester is 100%, the diester is 66.7%, and the monoester is 33%. Thus, the average acylation rate of the glyceroldiacetomonolaurate having a hydroxyl group value of 20 is calculated as follows:

$$(100 \times 0.887) + (66.7 \times 0.113) = 96.2(\%)$$

As disclosed on Table 2, page 14, of the present specification, the solvent extraction of Comparative Example 4 shows that the solvent extraction of the glyceroldiacetomonolaurate has an average acylation rate of over 90%. In view of the above, it is clear that Sashida et al. does not disclose an average acylation rate of 55 to 90% either expressly or inherently. Furthermore, one skilled in the art in view of the disclosure and Examples in Sashida et al. find the claimed acylation rate inherent in Sashida et al.


Moreover, one skilled in the art would not be motivated to provide the claimed composition having an acylation rate of 55 to 90% based on the disclosure of Sashida et al. Accordingly, independent claim 1 is not anticipated by or obvious over Sashida et al.

The acylation rate of the claimed invention provides a high solvent resistance to a paraffin solvent system. Sashida et al. clearly provides no suggestion to one skilled in the art that the resulting composition of Sashida et al. exhibits high solvent resistance to paraffin solvents. Furthermore, Sashida et al. provides no guidance to one skilled in the art to modify a composition to provide an improved and high solvent resistance. The high solvent resistance to paraffin solvents is particularly beneficial when the composition is used for oily foods. Sashida et al. does not disclose or suggest the advantages and improved properties of the composition of the present invention.

As noted in the specification on page 2, lines 10-15, the combination of a monoacetodiglyceride of a fatty acid and polyglycerin acetic acid ester as plasticizers has not been entirely successful for use in food packaging. As disclosed on page 15 of the specification, a packaging material made from the claimed invention is particularly suitable for oily foods. The art of record, and particularly Sashida et al., provide no suggestion of the claimed composition or the improved resistance to oily foods as defined by the solvent resistance in paraffin solvent systems.

In view of these amendments and the above comments, reconsideration and allowance is respectfully requested.

Respectfully submitted,



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